



Le Grand Elementary

Grade 5 Notes

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2/24/26 - Lisette and Keith

Brianna - sorry that you missed our meeting today, but I'm going to try to really faithfully write down what we talked about.

Focus of Our Work

We are really focusing on the consistent implementation of three research-supported teaching strategies:

1. Regular use of Number Talks (MLR 2)
2. Regular use of Three Reads (MLR 6)
3. Regular use of Building Thinking Classrooms-style lessons

Curriculum Update

Lisette shared that she has recently covered:

- Adding and subtracting fractions with unlike denominators
- Multiplication of fractions
- Simplifying fractions

They are moving soon into:

- Multiplying mixed numbers
- Division of fractions



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Building Thinking Classrooms (BTC)

We discussed Lisette's journey with Building Thinking Classrooms.

I shared a resource of [non-curricular tasks from Duane](#) and encouraged her to experiment with some of these near the end of this school year to find ones that are her favorites to do with students.

The recommendation:

- Try several non-curricular tasks between now and the end of the year.
- Identify about six favorite tasks.
- Use those six within the first two to three weeks of school next year to establish BTC culture and routines.

There are so many benefits to starting the school year this way. These tasks are really fun and engaging for kids, and they transform students' ideas of what math class can be like.

I encourage you both to dig in, try some out with your students at the end of this year, find your favorites, and then use those within the first two to three weeks of school next year.

Number Talks

We walked through Lisette's current recipe for Number Talks.

I then shared a recipe and did a demonstration of a Number Talk in Lisette's class. Here's a recipe we discussed:

Time: 5-7 minutes; Materials: Chart Paper!

1. Show problem on chart and use hand signals to indicate strategies. Wait for about $\frac{1}{3}$ to have a thumb up.
2. Do a quick turn-and-talk to get students talking. This should feel quick.
3. Scribe 2-3 strategies, asking, "Did anyone else get XYZ using a different strategy?"
4. Reserve the 4th box for a strategy you'd like to teach, in case a student doesn't bring it up.
5. Hang up the chart paper so they can refer back to it throughout the year.



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There are many recipes for Number Talks, but I chose this approach because I wanted to expose and teach the halving and doubling strategy to some of Lisette's students.

After the demo, we debriefed to discuss implementation strategies to build consistent implementation.

Lisette signed up for:

- Me to watch her lead a Number Talk tomorrow
- A collaboratively designed Three-Read lesson that I will demonstrate afterward
- **The remaining Day Twos in March and April for me to watch her do a Number Talk and give her feedback**

Lisette shared that to bridge the implementation gap, she will build structured accountability by:

- Doing Number Talks every Monday and Wednesday

She also said she is more likely to implement if she:

- Has knowledge of the content and strategies
- Feels a sense of efficacy with Number Talks and Three Reads

We will continue developing that.

Three Reads

We walked through her current recipe for Three Reads and refined it.

Once we have done a Three Read, which should take no more than about seven minutes, students need to actually solve the problem.

Traditionally, we might have students work and then solve the problem on the board with them.

However, building on what we have been focusing on with teaching problem solving, one approach might be:



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1. Three-Read protocol (about 7 minutes)
2. Students work individually and then share in groups while the teacher monitors and selects two to three student strategies with CRA in mind (5-10 minutes)
3. The teacher scribes two to three student strategies (and a teacher strategy, if necessary) and has students compare and connect between the strategies (10-15 minutes)
4. Optional: Provide another set of numbers in that same problem and have students solve again, trying to move them through a progression of strategies (5 minutes)

On days where the teacher does a Three Read (and once a week sounds great), the teacher should be aware that this will likely take 30 to 40 minutes total. That includes:

- Launching the problem with the Three Read
- Giving students time to solve
- Monitoring and selecting strategies
- Scribing and connecting strategies

This is essentially teaching through problem solving.

Lisette shared that she will implement:

- Three Reads every Thursday

Implementation Commitments

To build consistent implementation, Lisette plans:

- Number Talks on Monday and Wednesday
- Three Reads on Thursday



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She acknowledged that knowledge and efficacy are key to implementation, and we will continue building both.

Thanks for a great day.

Brianna, I hope this was helpful. Please let me know if you have any questions or want more information. Feel free to sign up for a time the next time I am on campus the rest of this year.

Best wishes,
Keith

11/17/25 - Lisette, Briana, Keith

Lisette and Brianna, thank you so much for meeting with me! We began our session with a **Dinner Plate Protocol**, where you each drew a pie chart of the instructional moves you use in your classroom, with slice sizes relative to how often you use them. This led us into a rich discussion about which practices tend to have the highest instructional impact.

From there, I walked through the **three goals of our work plan**:

1. **MKT**
2. **CRA**
3. **TTP (Teaching Through Problem Solving)**

We talked about how TTP—much like BTC—is an instructional approach we want to become a large and consistent part of your instructional dinner plate. The goal isn't to remove or shove aside the other "foods" on your plate. The goal is to integrate what you're already doing into a TTP structure. I genuinely believe that's possible.

Next, we moved into some Collaborative Lesson Design. You both selected meaningful division and multiplication problems and did a fantastic job mapping out these lessons. We discussed the overall structure of TTP, and while there *are* many nuanced elements, we agreed it would be too much to try to do everything at once. So we're phasing it in.



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For **Phase 1**, we focused on:

- Choosing a strong, worthwhile problem
- Providing intentional individual think time
- Moving into small-group collaboration
- Selecting and sequencing *three* strategies to feature on the board
- Changing the numbers in the original problem to extend thinking

After planning, we went into the classroom where Brianna generously demoed TTP. She did a *great* job! I also witnessed some staggeringly powerful data gains. With the exception of one table group, nearly the entire class missed the problem on the first attempt. After Brianna's TTP facilitation—especially the strategy descriptions—students who hadn't been successful the first time were able to do it in Round 2. This was huge growth.

That's not a 900% jump (percent increases break when you start from zero).

It's something even more meaningful:

- A 100% success rate for students who had been unsuccessful the first time.
- A complete, full turnaround in conceptual understanding.
- Evidence of learning that isn't just answer-level – it's reasoning-level.

This snapshot really highlights just how powerful Teaching Through Problem Solving can be.

It was also clear how engaged the students were. Lisette and I were really struck by the level of participation and focus. Even though Brianna sees them daily, we both agreed that student engagement was impressively high.

Brianna, thank you again for your willingness to take on a live demo of TTP. I hope this is just the beginning of your journey with this powerful instructional approach. And Lisette, I'm looking forward to seeing you tomorrow!



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9/10/25 - Lisette, Briana, Duane, Scott, Keith

We began our session with introductions and then shared some “peaches and pits.” Briana highlighted that one of her peaches is how well students are using [number lines with decimal](#) operations. She noted that [visual representations](#) in general have been a real strength in her classroom, and she’s seeing how much they support student understanding - something that’s strongly backed by research on mathematics instruction. She also mentioned that because this isn’t her first time teaching Eureka Math, the familiarity has allowed her to feel more confident in prioritizing and making instructional decisions.

Both teachers also raised the challenge of what they described as a “barbell effect” in this year’s cohort: quite a few students are excelling, quite a few are struggling, and there are relatively few in the middle. They are thinking strategically about how to bridge this gap. In addition, they noticed students grappling with place value, especially with the [place value chart](#) that is so central in both 4th and 5th grade math. Students are also in need of more visuals for long division, and the teachers are interested in connecting those visuals ([such as the chip model](#)) more directly to the long division algorithm.

These visual approaches connect to a larger instructional goal: ensuring students first build conceptual understanding before pressing toward procedural fluency. We acknowledged that visuals like number lines, chip models, and tape diagrams can help students arrive at the correct answer, but the real value lies in moving beyond the answer toward fluency with strategies and algorithms. The team affirmed that we don’t want to shortcut this process—conceptual grounding must come first, but it cannot be the end. With repetition and intentional sequencing, these models can open pathways to fluency in all operations.

We also discussed assessment practices, particularly the early implementation of FIABs (Focus Interim Assessment Blocks) and the [Last Mile Protocol](#). Rather than using FIABs only as accountability checks, we explored how they can serve as instructional tools—surfacing misconceptions, sparking classroom dialogue, and informing next steps. The Last Mile Protocol, which we will revisit with specific resources, provides a structured way to make sure this assessment data translates into concrete instructional moves. Embedding these tools into instruction will help ensure students are not only exposed to rigorous items but also supported in developing reasoning strategies to approach them.

After this reflection, we moved into planning together. We focused first on division of decimals, working with GoMath Unit 2.7, where students divide decimals in the ones, tenths, and hundredths places by whole numbers. We explored a variety of strategies and ways to model these problems, and we emphasized [the importance of tape diagrams](#). Tape diagrams don’t “do” the solving for students, but they model the key elements of the problem in a way that helps students decide which operation is needed and why. We introduced [an eight-step process](#) for generating tape diagrams for word problems, which we’ll revisit in tomorrow’s demonstration.



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Our planning also included a review of the differences between **partitive division** (“How many in each group?”) and **quotative division** (“How many groups can I make?”). We reinforced how [the chip model](#) can be used for both approaches, helping students make sense of division in flexible ways. From there, we looked at a subtraction of decimals problem and explored how the chip place value chart can model this operation step by step.

Throughout these conversations, we tied our planning to the **California Math Framework** and its [three dimensions of systemic change](#). One of those dimensions - **personal and cultural relevance** - was a key focus. A quick, practical way to address this is to adapt word problem contexts by changing names and scenarios to things that matter to students in their daily lives. Even small changes like this can help students feel more ownership and connection to the mathematics.

Finally, we previewed what tomorrow’s classroom demonstrations will look like. I’m looking forward to building on today’s planning with both of you. Briana and Lisette, thank you for welcoming me into your classrooms and for your openness in this collaboration. I’m excited to continue this learning journey together with you and your amazing students.

3/10/2025 (with Duane)

We began today with a deep dive into how to teach dividing fractions in 5th grade.

We are only required to teach dividing whole numbers and unit fractions

- $\frac{1}{4} \div 3$
- $3 \div \frac{1}{4}$

CCSS.MATH.CONTENT.5.NF.B.7.A

Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. *For example, create a story context for $(1/3) \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(1/3) \div 4 = 1/12$ because $(1/12) \times 4 = 1/3$.*

CCSS.MATH.CONTENT.5.NF.B.7.B

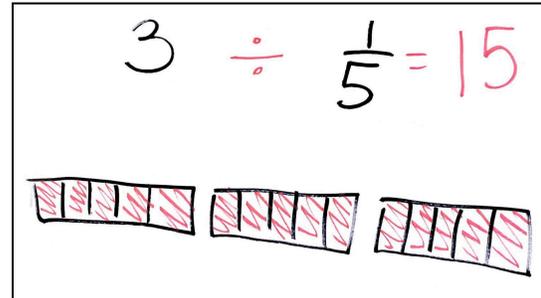
Interpret division of a whole number by a unit fraction, and compute such quotients. *For example, create a story context for $4 \div (1/5)$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$.*



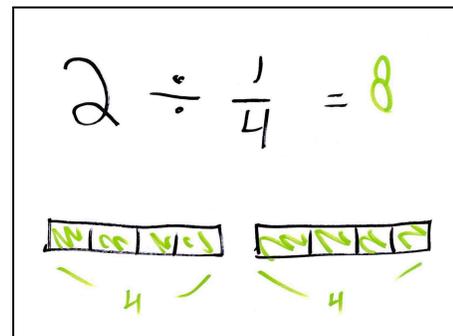
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To explain $3 \div \frac{1}{5}$ we use the context, "How many fifths live in 3 wholes?" Maybe we add meaningful context, "Josie has 3 candy bars and cuts each into fifths. How many fifths will she have?"



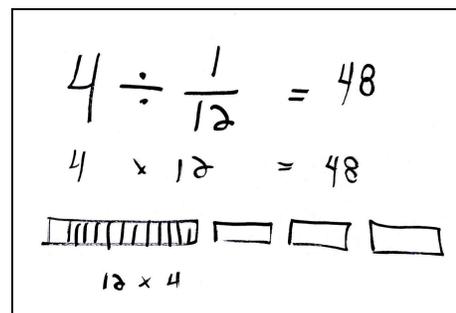
Continue practicing this problem type with other numbers.



Eventually, you can use numbers that are too big to actually draw. Now students are forced to generalize the process in their mind.

$4 \div \frac{1}{12}$ would require cutting each whole into 12 parts, which is too hard to do. Let's just multiply $4 \times 12 = 48$.

Now we know $4 \div \frac{1}{12} = 48$.





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In 5th grade we absolutely do NOT need to learn the formal algorithm for dividing a whole number by a unit fraction.

No need for the mantra "Keep the first fraction. Change to multiplication. Flip the second fraction."

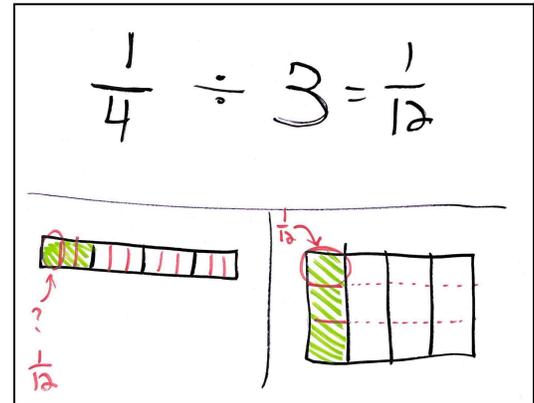
$$5 \div \frac{1}{6} = 30$$
$$\frac{5}{1} \times \frac{6}{1} = \frac{30}{1} = 30$$

The second problem type is dividing a unit fraction by a whole number.

$$\frac{1}{4} \div 3$$

To introduce this problem type, we use the context, "Start with one fourth. Cut it into 3 parts. What fraction is one of those parts?"

Additional context might be, "I have $\frac{1}{4}$ of a brownie and share it equally with my three friends. How much does each friend get?"



Continue practicing this problem type with other numbers. Eventually, you will use numbers that are large enough that it becomes inconvenient to draw the picture. Now students have to imagine what the model would look like.

$$\frac{1}{4} \div 15$$

Each fourth is cut into 15 pieces.

$$4 \times 15 = 60$$
$$\frac{1}{4} \div 15 = \frac{1}{60}$$



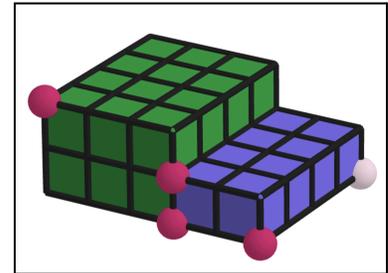
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We then had lots of fun exploring volume.

We used this GeoGebra applet to create a composite shape and then counted the number of cubes to build that shape.

<https://www.geogebra.org/m/zszz9sje>

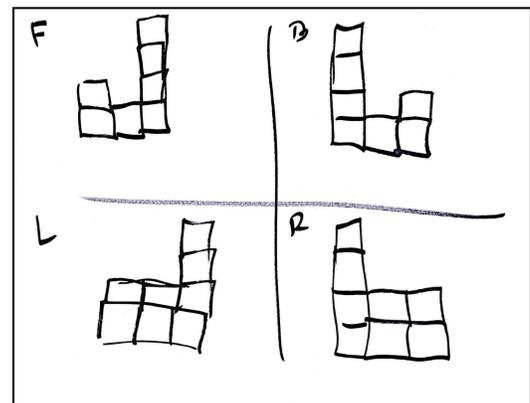


The important thing is to **NOT** use a formula. Rather, we emphasize counting the cubes in the figure.

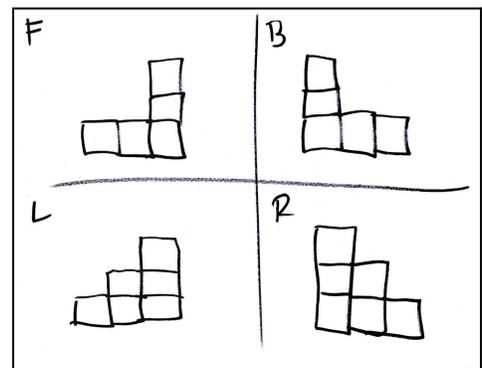
Encourage students to share the variety of ways students might see this shape: layers of a cake or slices of a loaf of bread.

We then played with spatial visualization. I created a figure and then provided the front, back, left, and right views.

Then we tried to build a figure that satisfied each of the four views. What was the volume of the figure that we built. Did everyone have the same volume?



Another example of the same activity.





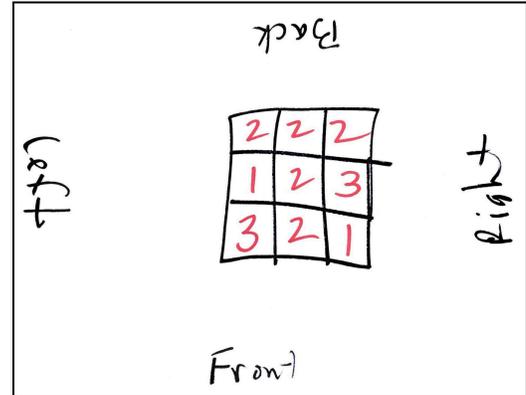
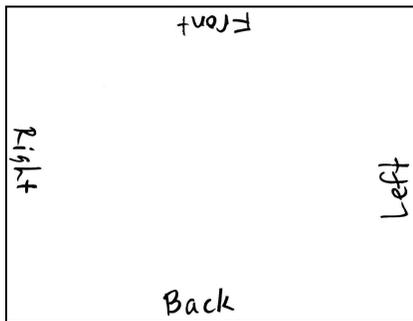
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Briana asked about the "bird's eye" view.

In this case, students build the figure and then draw the resulting four views: front, back, left, right.

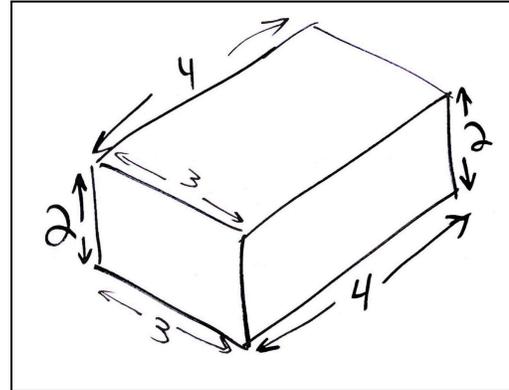
Providing a placement for students to build their figure on might be helpful.



We are now ready for a more traditional volume question: how many cubes are needed to build this figure?

In this case, do NOT simply teach the "formula" of $V = lwh$. Instead, tell students to build this figure and count the cubes.

Provide more dimension lengths than necessary to reduce the chance students will simply multiply.





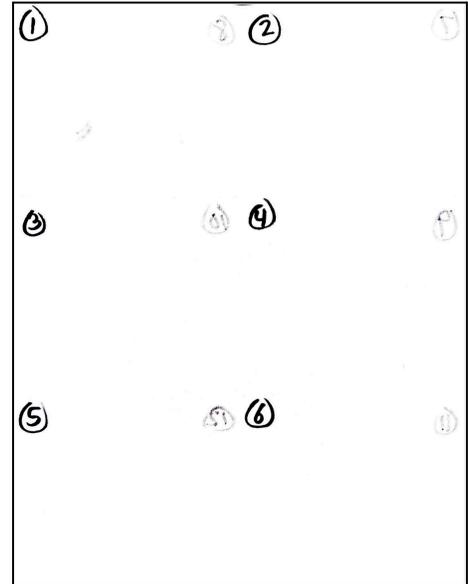
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We finished the day with a brief conversation about using the Box 6 strategy to incentivize students showing their work. This is especially important when the mathematics is being delivered via a computer screen (CAASPP, FIAB, etc.) in which students tend to NOT show their work.

We use the Box 6 format to normalize the process of students showing their work. Each sheet of paper folded into sixths can hold 12 problems.

We then use carrots and sticks to incentivize students into showing their work.





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12/2/2024

We started our conversation by discussing how to support our students who are still struggling with their multiplication facts.

Students can solve 4×6 through four stages of development:
Counting \rightarrow Addition \rightarrow Multiplication \rightarrow Memory

Historically, we try to jump from Addition to Memory. Not enough time is spent letting students develop multiplicative strategies.

$4 \times 6 = 24$

Counting (K-1)	Additive (1-3)	Multiplicative (3-5)
	6, 12, 18, 24 4, 8, 12, 16, 20, 24 4, 4, 4, 4, 4, 4 8 8 8 16 8 24	4×6 $2 \times 6 = 12$ $\begin{array}{r} 12 \\ + 12 \\ \hline 24 \end{array}$ 4×6 5 1 $4 \times 5 = 20$ $\begin{array}{r} 20 \\ + 4 \\ \hline 24 \end{array}$

We then practiced developing multiplicative strategies for 7×8 .

Students who are struggling with their times tables need to be provided time to develop a series of multiplicative strategies for deriving their multiplication facts.

Here is [an article](#) that builds on this idea.

Some blog posts I have written to further guide teaching multiplication facts.
<https://theothermath.com/index.php/tag/multiplication/>

$7 \times 8 = 56$

Counting by 7s: $7, 14, 21, 28, 35, 42, 49, 56$

Doubling: $7 \times 4 = 28$, $28 + 28 = 56$

Using 7x10: $7 \times 10 = 70$, $70 - 14 = 56$

Using 7x7: $7 \times 7 = 49$, $49 + 7 = 56$

Using 2x7x8: $2 \times 7 \times 8 = 2 \times 56 = 112$, $112 \div 2 = 56$



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Students can even use the strategies on bigger problems, although now they should be allowed to write their thinking down on a whiteboard.

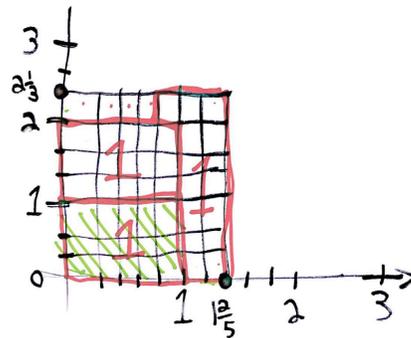
$$23 \times 12 =$$

Handwritten student work for $23 \times 12 =$ showing various strategies:

- Standard multiplication: $23 \times 12 = 276$ (circled)
- Standard multiplication: $23 \times 12 = 276$ (circled)
- Decomposition strategy: $23 \times 12 = 46 \times 6 = 92 \times 3 = 276$
- Area model: $23 \times 12 = 200 + 6 = 206$ (Note: The student's area model appears to be $20 \times 3 = 60$ and $2 \times 3 = 6$, totaling 66, which is incorrect. The student has written 200 and 6 in the grid.)

We talked briefly about using the area model to multiply fractions.

$$2\frac{1}{3} \times 1\frac{2}{5} = \cancel{2\frac{2}{15}}$$
$$\frac{7}{3} \times \frac{7}{5} = \frac{49}{15} = 3\frac{4}{15}$$





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We then briefly discussed how we might use the area model to think of division using partial quotients.

$58 \overline{) 684}$
 $12 \overline{) 6840}$
 840
 600
 $\underline{240}$
 ?

100	200	200	50	20	
1200	2400	2400	600	240	6840
					-1200
					5640
					-2400
					3240
					2400
					<u>840</u>

Another way to think of division is to use ratio thinking.

$12 \overline{) 6840}$ $12 \times \square = 6840$

1	12	
100	1200	
400	4800	
500	6000	= 6600
50	600	
20	240	

570 6840
 $\underline{6840}$
 240

$12 \times 570 = 6840$

$12 \times \square = 6840$

1	12
100	1200
300	3600
40	480
400	4800
500	6000



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Briana asked whether division follows the same stages of mathematical development. Yes!

Counting → Addition → Multiplication → Memory

In the example to the right we see counting and addition, but not multiplication.

$6 \overline{)42}$ $6 \times \square = 42$

😊	😊	6
😊	😊	12
😊	😊	18
😊	😊	24
😊	😊	30
😊	😊	36
😊	😊	42

May 16, 2023

Today we talked about two primary topics:

- How to begin the year to support students with a growth mindset
- How do we model subtraction on a number line?

Building a Growth Mindset with non-curricular tasks

Here are some collections by grade level of some non-curricular tasks. Use these tasks to establish with students that they are expected to THINK rather than mimic what the teacher teaches. Be sure to review the class norms prior to working on the problem. It is suggested that teachers do 3 to 5 non-curricular tasks to begin the year.

- Grade K/1:
<https://docs.google.com/presentation/d/1LCn93LPbLnUsv229LklAtMERSVoSWGoiMt144pKLQRA/edit?usp=sharing>
- Grade 2/3:
https://docs.google.com/presentation/d/1qQdG5BgQdBSZt4izfw8JO3kG5gjQfSNQCiblt80qJ_w/edit?usp=sharing
- Grade 4/5:
https://docs.google.com/presentation/d/1Z6FIKpaZKu0GRQNj50_qddHG9TVIvEhgdYY-Y4qTjU8/edit?usp=sharing



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- Grade 6/7/8:
<https://docs.google.com/document/d/1EMq1w2gdl--oSN5cRUrltqSzvjq7VMXwkOu201Wz3Q/edit?usp=sharing>

SUBTRACTION

There are two strategies for thinking about $8 - 3$: removal strategy and add-up strategy.



Removal Strategy and Add-Up Strategy



The Removal strategy is the method many textbooks solely focus upon. To model $8-3$, you would start at 8 on the number line and then go backwards (remove) 3. Since we end up on 5, the answer to $8-3$ is 5.

This method is particularly effective when the number being removed is fairly small.

$$87 - 4$$

$$13 - 2$$



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1249 - 7

...these problems are particular well-suited for using the Removal Strategy.

Add-Up Strategy



A second strategy for solving a subtraction problem is the Add-Up Strategy. In this strategy you think of the subtraction problem as an addition problem with a missing addend. Therefore, to solve $8-3$, you would think "3 plus what equals 8?".

$$3 \boxed{+} = 8$$

Said in another way, "how many hops do I need to make to go from 3 to 8?"

This method is particularly effective when the number being removed (minuend???) is fairly close to the first number (subtrahend????).

87 - 82

13 - 9

1249 - 1500

...these problems are particularly well-suited for using the Add-Up Strategy.

Examples of Add-Up strategy on a number line



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It is important to allow students to share their MANY different ways to arrive at the answer using the same model and strategy.

Here are three different ways to use the Add-Up strategy for $1235 - 897$:





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The Add-Up strategy also works for *fractions!!!*



February 7, 2023

We talked about CRA today.

Using dots to model long division.

Using tape diagrams to model fraction addition



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Using tape diagrams and number lines to represent subtraction.

October 25, 2022

Today we focused mostly on expanding our understanding of the strategies and models we want our 4th and 5th grade students to know.

Here is the list of essential strategies: <http://bit.ly/Strategies-and-Models>

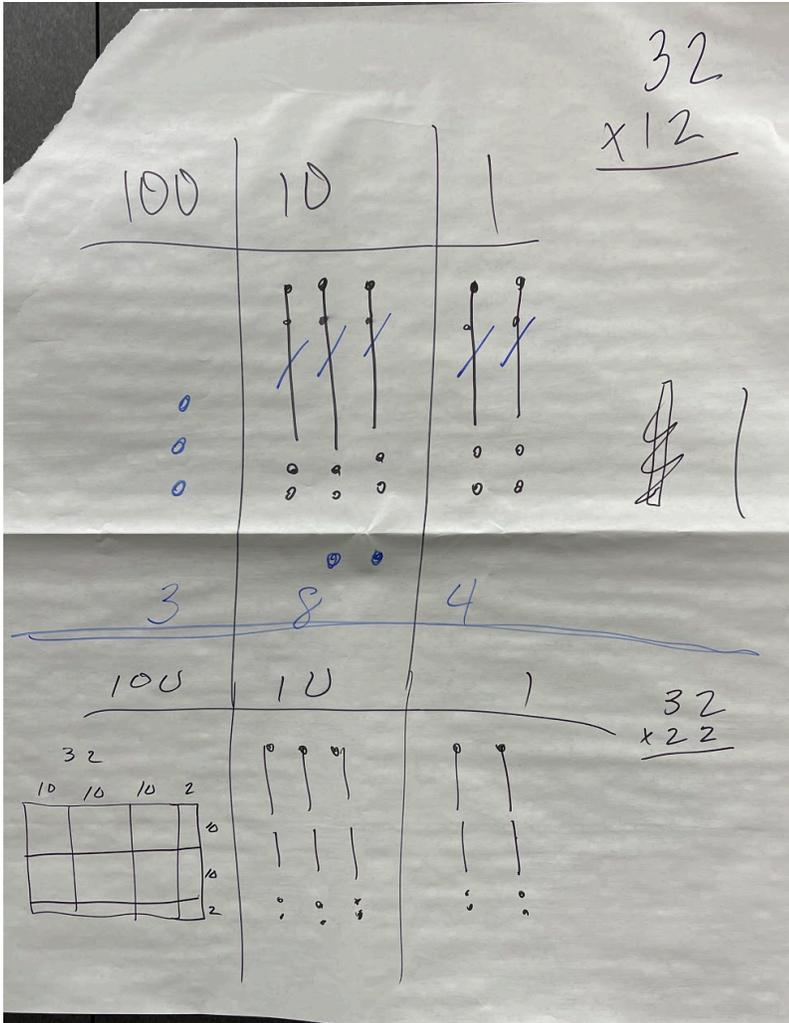
What visual representation might we use for 2-digit by 2-digit multiplication problems? We can use dots or area model.

Here are the dots... (The area model is in the lower left corner of the photo.)



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A couple of ways to model division. Area model and dots.

We want to use dots because dots will extend into decimals, while the area model does not allow us to extend into decimals.



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12

	10	10	10	1
120	120	120	12	

?

$$\begin{array}{r} 12 \overline{) 373} \\ \underline{-120} \\ 253 \\ \underline{-120} \\ 133 \\ \underline{-120} \\ 13 \\ \underline{-12} \\ 1 \end{array}$$

100	10	1	$\frac{1}{10}$	$\frac{1}{100}$
0	3	1	0	

$5 \div \frac{1}{6}$

Here is a playlist of several videos I made showing a variety of ways to do long division:

https://youtube.com/playlist?list=PLvolZqLMhJmkMPmBH-oel9ufT_7dwk_v4

We then wrapped up our time by studying each of the four essential multiplication strategies and how to model them.



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8×24
 $4 \times 24 = 96$
 $4 \times 24 = 96$
 $96 + 96 = 192$

8×24
 20×4
 $8 \times 20 = 160$
 $8 \times 4 = 32$
 $160 + 32 = 192$

8×24
 $8 \times 25 = 200$
 $200 - 8 = 192$

8×24
 16×12
 $32 \times 6 = 192$
 64×3

$2\frac{1}{2} \times 8$
 $5 \times 4 = 20$

NEXT STEPS:

- How can we apply the principles of CRA to our daily curriculum?
- How might we incorporate Desmos/Polypad into our instruction?